Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Section 68.4(a) of the Commission's Rules	)	WT Docket No. 01-309
Governing Hearing Aid-Compatible Telephones	)	RM-8658
	)	

REPLY COMMENTS OF
NEXTEL PARTNERS, INC.

Nextel Partners Inc. ("Nextel Partners"), by its attorneys, hereby submits its Reply Comments in the above-captioned proceeding. As set forth below, revocation of the statutory exemption for hearing aid compatibility of wireless mobile phones at this time is not the most promising avenue to the ultimate goal of ensuring access of hearing-impaired individuals to the digital wireless network. Nextel Partners believes that the best way to address the compatibility issue is for the United States to adopt a uniform standard to govern the immunization of hearing aids. This effort should be lead by the Food and Drug Administration ("FDA"), with participation by the hearing aid and wireless industries. In addition, hearing aid and wireless manufacturers should cooperate to test the "pairing" of their devices. Wireless carriers should take the lead in communicating the information on pairing to their customers in order to increase user awareness and choice.

BACKGROUND

Nextel Partners provides digital wireless communication services in mid-sized and smaller markets throughout the United States, serving 58 markets where approximately 51 million people live or work. Nextel Partners offers its customers the same fully integrated four-in-one services available from Nextel Communications, Inc., which include digital cellular,

text/numeric messaging, Nextel Wireless Web services and Nextel Direct Connect digital two-way radio in a single phone.

Nextel Partners' network employs Motorola's proprietary "iDEN" (integrated digitally enhanced network) technology, which uses TDMA (time division multiple access) techniques to enhance efficient use of available spectrum, along with VSELP (vector sum excited linear prediction) to digitally code and compress voice signals. Only Motorola manufactures handsets compatible with the iDEN technology, and therefore Nextel Partners works closely with, and relies on, Motorola to ensure the compatibility of Nextel Partners' handsets with other devices, including hearing aids. In addition, Nextel Partners also offers TTY and relay services for the hearing impaired.

As a carrier that offers no analog services, Nextel Partners is particularly concerned with the special difficulties encountered by hearing-impaired individuals in their attempts to gain access to digital wireless services, and is motivated to work with the Commission, with Motorola, and with purveyors of hearing aids on a cooperative basis to seek workable solutions to these problems. Nextel Partners notes that its handset vendor, Motorola, has been very active in seeking to meet the needs of the hearing impaired. In fact, as of three years ago, Motorola began designing iDEN phones in compliance with the FCC's wireline coupling standards to enhance their compatibility with hearing aids. Motorola has also developed, and Nextel Partners offers, a variety of peripheral devices intended to make it easier for hearing-impaired persons to use the iDEN system: speakerphones, hands-free devices, neck loops (to increase the distance between the phone transmitter and the hearing aid) and fold-out portable keyboards. [1]

[1] These features may explain why one commenter found that iDEN phones worked well in a test of hearing aid compatibility. *See* Comments of Rehabilitation Engineering Research Center ("RERC") on Telecommunications Access at 19.

Motorola was also a participant in the Hearing Aid Compatibility Summit organized in 1996 to research hearing aid compatibility issues. The main product of the Summit process research is a standard developed by the American National Standards Institute ("ANSI"), ANSI C63.19-2001, in consultation with the FCC and FDA to measure interference between handsets and hearing aids. Motorola also participates in CTIA's compatibility certification program that uses standards developed by ANSI, ANSI C63.19-2001, in consultation with the FCC and FDA to measure interference between handsets and hearing aids.

As set forth below, Nextel Partners believes that the compatibility issue before the Commission is a technical issue that requires continued cooperation between the wireless and hearing aid industries. On the other hand, revocation of the exemption will have little real world benefit and is contrary to the public interest.

DISCUSSION

A. The Exemption for Wireless Mobile Phones Should Not Be Revoked Or Limited.

The present state of the law as expressed in 47 U.S.C. Section 610(b)(2)(A)(i) and codified in the Commission's Rules at 47 C.F.R. Section 68.4(a)(1), wholly exempts phones "used with public mobile services" from the requirement of hearing aid compatibility. These phones include the digital wireless handsets employed by customers of wireless providers such as Nextel Partners.

The Hearing Aid Compatibility Act has strict standards – all of which must be met before an exemption is limited or revoked. First, the limitation or revocation must be in the public interest. Second, the continuation of the exemption without limitation or revocation must have an adverse effect on hearing-impaired individuals. Third, compliance with the compatibility

requirement must be technologically feasible, and compliance would not increase costs to such an extent that the modified phones could not be marketed successfully.

Nextel Partners submits that a revocation of the exemption would not meet all of the statutory requirements. First, the technical standards used to determine whether a given wireline handset is or is not "hearing aid compatible" are concerned with magnetic coupling, and would do little or nothing to address the interference issues that are the predominant reported problem with the use of digital wireless phones. Interference, as opposed to coupling, was not an issue in the pre-digital days and therefore not addressed by the *Hearing Aid Act*.[2] Accordingly, it would not benefit the public to require that wireless mobile handsets adhere to standards that were never meant to apply to wireless mobile handsets.[3]

Second, the needs of the hearing-impaired are not served by regulatory action in a context where there is no clear pathway to compatibility. Because the presence of the exemption is not the cause of the incompatibility problems, the failure to revoke or limit the exemption will not have an adverse effect on hearing-impaired persons. Finally, as detailed below, although the Commission's jurisdiction, and the thrust of both the Hearing Aid Compatibility Act and its implementing regulations is aimed at regulation of phone vendors and service providers,

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[2] Coupling controls magnetic field emissions; RF signals affect electric field emissions.

[3] The only technical requirements for hearing aid compatibility presently in place for the Commission's purposes are set forth in 47 CFR Section 68.316, promulgated in *1983* (*i.e.,* considerably prior to the advent of the digital wireless systems) by the Electronics Industry Association ("EIA"), and they essentially govern the standards that will allow a standard landline telephone to generate a magnetic field with parameters that will facilitate coupling with a hearing aid. As observed in the EIA's standards, the fact that landline telephones generated a magnetic field *at all* was essentially gratuitous and incidental -- but this inherent characteristic was what enabled coupling with hearing aid devices – and so standards were developed to govern the magnetic field so that compatibility could be engineered into both handsets and hearing aids. These standards are likely to be insufficient to address all of the compatibility issues at large between wireless mobile handsets and today's hearing aid devices.

including digital wireless telecommunications carriers, it is unlikely that the best progress for hearing-impaired persons can be made by focusing on the modification of handsets or the digital wireless networks on which they are used. Therefore, revoking the exemption would place an unnecessary cost and service burden on the wireless industry with no countervailing benefit to the hearing impaired.

As suggested by many of the commenters, compatibility actually involves *several different* issues,[4] made even more complex by the evolution of hearing devices and wireless handsets.[5] For example, some hearing aid users depend on T-coils to couple inductively to landline telephones, and desire comparable coupling with digital wireless handsets.[6] Other hearing aid users simply want to hear the sound from the handset speaker without also receiving static from the proximity of the phone to their hearing aid. In short, the best available solution to most of these hearing aid issues is to focus on the design and manufacture of *hearing aids*, something that is beyond the jurisdiction of the Commission, and would not be affected by the retention or revocation of the exemption for wireless phones.

B. The Most Promising Technical Approach is to Focus on Strengthening the Immunity of Hearing Aids to the RF Pulses of Digital Wireless Phones.

The principal theme of the compatibility issue with digital wireless systems is that digital wireless handsets transmit RF pulses. Because the RF pulses from the handsets are intrinsic to the operation of the handset, it is not possible to eradicate the pulsing while preserving the

[4] See eg. Comments of AAES.

[5] In fact, regardless of what the Commission does or does not do in this proceeding, the large variations in the technical characteristics of the various hearing aids in use, and the variations in the technical characteristics of the various cellular and PCS phones in use make a universal solution to all compatibility difficulties extremely unlikely. *See* Comments of ASES at 13; TIA at 7-12; Comments of American National Standards Institute Accredited Standards Committee 63 (EMC) Subcommittee 8 (Medical Devices) ANSI ASC C63 SC8 ("ANSI") at 15; Comments of Jo Waldren ("Waldren") at 8; Comments of CTIA at 14.

[6] *See, e.g.,* Comments of Ronald H. Vickery.

functionality of the handset. The logical starting point, then, is to consider either shielding the hearing device to become more "immune" to the types of RF pulses emitted by digital wireless handsets, or taking steps to diminish the intensity of the RF pulses from the handset itself.

The problem with the latter approach, according to telecommunications experts, is that when the intensity of the RF pulsing from the wireless handset is diminished, it becomes less effective in performing its intended task of communicating with wireless base stations.[7] Such an approach would not adequately address the need of the hearing impaired to access the digital wireless network. Moreover, if such a requirement were applied across-the-board to all wireless handsets, this would degrade wireless phone service to the entire wireless public.

Because it is necessary for the digital wireless handsets to emit RF pulses, the only other reasonable alternative is to focus on improving the hearing device. Nextel Partners agrees with many of the commenters in this proceeding that a focus on the "immunity" of the hearing device is the most promising first step in this overall effort. As noted by the Telecommunications Industry Association ("TIA") and the Cellular Telecommunications and Internet Association ("CTIA"), both the European Union and Australia concluded that this focus on hearing aid "immunity" is the approach most likely to produce beneficial results.[8]

C. The Commission Should Encourage Cooperation to Develop Standards to Enhance Hearing Aids' Resistance to RF Pulsing of Digital Handsets.

Nextel Partners suggests that, due to the nature of the compatibility problem, it is far more likely that a concerted, cooperative effort between manufacturers of wireless mobile handsets and hearing aid manufacturers to address this multi-faceted problem, with the principal

[7] *See, e.g.,* Comments of Matsushita Electric Corporation of America at 6-7. Moreover, Australia's National Acoustic Laboratory expressly rejected the option of shielding wireless handsets. *Id.*

[8] TIA Comments at 17-19; CTIA Comments at 14-17.

focus on the engineering and design of hearing aids, will produce the best results. The Commission should work together with the FDA (which has jurisdiction over hearing aid manufacturers) to adopt a uniform immunity standard for hearing aids.

This process should also encourage cooperation between wireless mobile telecommunications service providers, handset manufacturers and hearing aid manufacturers, to accomplish the goals of the Hearing Aid Compatibility Act. Cooperative, interdisciplinary work that results in the matching of wireless handset characteristics to the characteristics of hearing aids is crucial to advancing the public's interest in allowing hearing-impaired persons to access digital wireless networks. Since the Hearing Aid Compatibility Act only requires phones to be compatible with those hearing aids that are "designed to be compatible" with phones, 47 U.S.C. Section 610(b), the need for mutual efforts to engineer and design workable *combinations* of devices is clear.

It will be necessary for hearing aid manufacturers, digital wireless handset manufacturers and service providers to be involved in the process of resolving compatibility problems. Hearing aid design cannot be made resistant to interference from digital phones unless all relevant technical parameters of the phones and the systems they work in conjunction with, are made available to engineers and designers of hearing aids. This would include at least circuit board designs, modulation techniques, antenna specifications, RF field strength measurements, etc. Since the characteristics of digital wireless handsets are so disparate, an effort should be made to rate each handset in accordance with relevant technical standards, and share these data with hearing aid manufacturers. The Commission should encourage such sharing of data, consistent with proprietary concerns and subject to suitable confidentiality requirements.

Apart from issues of technology, it will be important for purveyors of wireless communications to understand the nature and extent of challenges faced by hearing-impaired persons, and to ensure that their employees are informed and suitably prepared to be of assistance. Retail personnel in particular should be educated so that they can interface with hearing-impaired persons, and advise them of the various products and services available to enhance their use of digital wireless phones, and their relative advantages and disadvantages. Certain phones or peripheral devices, for example, may work better than others with certain sorts of hearing aids. As more information concerning compatible pairings of particular hearing aids with certain mobile phones becomes available, system operators should ensure that their retail representatives are able to share this information effectively with the public.

CONCLUSION

In view of the foregoing, Nextel Partners respectfully requests that the Commission take action consistent with the views expressed herein.

Respectfully submitted,

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